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TECHNOLOGY LEADERS**

January 1, 2007

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Vermont General Assembly  
Secretary of Administration  
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Dear Legislators and Administration Officials:

Vermont Information Technology Leaders (VITL) is pleased to submit to you the enclosed Vermont Health Information Technology Preliminary Plan.

VITL is a 501(c)(3) non-profit organization which consists of representatives from health care providers, payers, employers, patients, health care purchasers, information technology vendors, state government agencies, and other business leaders. VITL was created after the Vermont General Assembly took a leadership position on the issue of health information technology and appropriated funds to VITL to begin creating a statewide health information infrastructure.

Under V.S.A. Title 18, Chapter 221, § 9417, VITL is charged with developing the statewide health information technology plan, including applicable standards, protocols, and pilot programs. This document fulfills the requirement in § 9417g, that on or before Jan. 1, 2007, VITL shall submit "a preliminary health information technology plan for establishing a statewide, integrated electronic health information infrastructure in Vermont, including specific steps for achieving the goals and objectives of this section."

The Preliminary Plan is the product of many hours of deliberation and research by a workgroup of more than 30 dedicated volunteers. They developed a shared vision and guiding principles for the final Vermont Health Information Technology Plan, which will be submitted by July 1, 2007. Workgroup members have identified key issues, developed a proposed outline for the final plan, and created a process for gathering input from diverse groups of Vermonters and reaching consensus.

As you will see in the enclosed Preliminary Plan, VITL is working diligently to develop a set of recommendations that Vermont policymakers can use to advance the adoption of health information technology, and realize all the benefits that come with it. At the same time, VITL is committed to working with all stakeholder groups in a collaborative manner to ensure that the needs of all Vermonters are met.

Thank you for your attention to this critical issue, and we look forward to receiving your feedback.

Sincerely,

W. Cyrus Jordan, MD, MPH,  
Chair, VITL

# *Vermont Health Information Technology Plan* **Preliminary Plan**

Submitted by:



Vermont Health Information Technology Plan Workgroup  
Vermont Information Technology Leaders

Submitted to:

Secretary of Administration  
Commissioner, Department of Banking, Insurance, Securities & Health Care Administration  
Commissioner of Information and Innovation  
Director of the Office of Vermont Health Access  
Vermont General Assembly

January 1, 2007

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## Executive Summary

The Vermont Health Information Technology Plan Workgroup, convened by Vermont Information Technology Leaders (VITL) under contract with the Department of Banking, Insurance, Securities & Health Care Administration (BISHCA), is facilitating the development of a statewide plan as described in 18 V.S.A. § 9417. The Workgroup consists of over 30 healthcare stakeholders with a shared vision.

**Our vision is for a healthier Vermont, where shared health information is a critical tool for improving the overall performance of the health care system. The health care community will work together to achieve new efficiencies through the use of information technology in order to deliver better overall value and care to our citizens.**

As a group, we have considered many scenarios such as the one on this page – in areas including medication history information for the benefit of emergency room patients; electronic laboratory results to support outbreak and food borne-illness management; and electronic medical records to help in the reduction of medical errors – all which help to illustrate the compelling benefits of an integrated electronic health information infrastructure for the sharing of electronic health information. These benefits include improved clinical outcomes, continuity of care, greater efficiency, and reduction of duplicate services.

### ***The Promise***

*The same 67-year-old man with diabetes and coronary artery disease is insured through the Medicaid program. His case is selected for disease management services because he has targeted chronic conditions. Lab results, claim, and eligibility data are analyzed, and it is clear that he is headed for a health crisis. He is referred to the Care Coordination Program (CC) for special attention. The regional nurse and social worker get in touch with him and because they are local people who know his doctor and community he agrees to participate in the program. They work with the man and both his doctors to develop a collaborative plan for managing his conditions. Because lab data is available electronically they can easily follow up to ensure that the man has taken tests when they were ordered, and they can monitor the results. Both doctors get the results so there is no duplication and they can make better care decisions. The CC employees refer the man to the local Healthy Living Workshop where he improves his self-management skills. A health crisis is avoided and health dollars were spent appropriately.*

### ***The Problem***

*A 67-year-old man with diabetes and coronary artery disease is insured through the Medicaid program. He has targeted chronic conditions so his case is selected for disease management services. Claim and eligibility data is analyzed and he is referred for completion of a health risk assessment. When the state's vendor calls to complete the assessment he decides not to participate so his name is not put on the list of people who receive phone calls or face-to-face visits from a nurse. He gets educational mailings but he usually throws them away. He regularly visits his local general practitioner and is sometimes referred for lab tests. He doesn't always go, but when he does, the results show that his health is declining. He doesn't always take his medication and he doesn't make recommended lifestyle changes. The cardiologist that he visits for his heart condition a couple of times a year doesn't know which tests he has taken or the results, so tests are sometimes duplicated. This man's health is out of control and it is likely that he will end up in the emergency room.*

Patient care today is an information-driven process. A statewide health information technology plan is a crucial step towards achieving this vision of effective, efficient, statewide use of electronic health information. Our charge from the legislature was to first develop this Preliminary Plan – a “Plan for the Plan” that describes our strategy for developing a Final Plan, outlines our efforts thus far and provides a preview of the key issues and specific steps which we expect to focus on in the Final Plan due July 1, 2007.

Our strategy for the development of the Plan is rooted in the legislation, which calls for eight

specific requirements spanning education, funding, standards; a special focus on security, privacy, data ownership and governance; and the integration of existing initiatives such as the Blueprint for Health. Based on the legislative requirements, the Workgroup proposed a set of five core principles – with 39 supporting principles – to help guide the development of recommendations and, looking to the future, to provide a framework for all health information technology initiatives in Vermont:

- I. Vermonters will be confident that their health care information is secure and private and accessed appropriately.
- II. Health information technology will improve the care Vermonters receive by making health information available where and when it is needed.
- III. Shared health care data that provides a direct value to the patient, provider or payer is a key component of an improved health care system. Data interoperability is vital to successful sharing of data.
- IV. Vermont's healthcare information technology infrastructure will be created using best practices and standards, and whenever possible and prudent, will leverage past investments, and will otherwise be fiscally responsible.
- V. Stakeholders in the development and implementation of the health care technology infrastructure plan will act in a collaborative, cooperative fashion to advance steady progress towards the vision for an improved healthcare system.

The Workgroup is especially cognizant of the legislative requirement that the Final Plan serve as the framework within which Certificate of Need (CON) applications are reviewed by BISHCA. While the development of specific recommendations related to CON has not yet occurred, we look to the core principles as a starting point for our deliberations, in collaboration with BISHCA, on that topic.

In addition to formulating vision, strategy, and principles, the Workgroup – with proactive, weekly participation from a diverse membership (see Appendix C for a complete listing) – has taken a number of steps towards the development of the Final Plan which are described in this Preliminary Plan. Features of similar plans from eight other states have been considered for inclusion; a Final Plan scope and outline has been proposed; and an initial set of “key issues” has been identified and explored in this Preliminary Plan. These issues include security and privacy, standards, provider health information technology (HIT) adoption, institutional HIT investment, as well as the needs and interdependencies between various stakeholders. The role that VTTL will play in the implementation of Plan recommendations, particularly involving the delivery of statewide health information exchange services, is a crucial issue that the Workgroup has discussed and will continue to work on during the development of the Final Plan. The group has also identified certain areas that require further development or deliberation before moving forward. For example, a process for soliciting and integrating feedback – from the legislature, the administration, and from the public – must be formalized. And certain complex topics such as “patient centeredness” and “patient control” must be better defined as part of an educational strategy before they are put in front of stakeholders for feedback.

# 1 Background

Vermont is ranked as the second healthiest state in the country according to the 2006 *America's Health Status* rankings published by the United Health Care Foundation<sup>1</sup>, joining five other New England states in the top-ten tier of this widely read publication. New England as a region and Vermont in particular have had successes in addressing such issues as prenatal care, immunizations and health insurance for children; but are facing challenges in the burden of chronic diseases, increases in the uninsured and rising health care costs. Vermont's governor and legislature are nationally recognized leaders in Medicaid changes, health care reform and efforts to curb health care costs and improve health outcomes, as well as in the application of information technology to these issues. Vermont Governor Jim Douglas was honored by the eHealth Initiative (eHI) in September, 2006 for his contributions in health information technology (HIT) and electronic health information exchange (HIE)<sup>2</sup>. These contributions included support for the Vermont Blueprint for Health Chronic Care initiative ("The Blueprint") and working with the state legislature and Department of Health, in collaboration with VITL, towards the development of a statewide HIT infrastructure. In accepting the eHI award, the governor said,

"Health information technology is the conduit for the people of Vermont to receive world class care by creating information networks so they can tap into the resources they need to improve their quality of life."

## 1.1 Technology Plan Workgroup and Decision Making Process

In 2005, the Vermont legislature authorized the Vermont Health Information Technology Plan (VHITP) development, specifically:

"The commissioner shall facilitate the development of a statewide health information technology plan that includes the implementation of an integrated electronic health information infrastructure for the sharing of electronic health information among health care facilities, health care professionals, public and private payers, and patients. The plan shall include standards and protocols designed to promote patient education, patient privacy, physician best practices, electronic connectivity to health care data, and, overall, a more efficient and less costly means of delivering quality health care in Vermont."<sup>3</sup>

In October, 2006 the Vermont Information Technology Leaders (VITL) established a working group to develop the Plan in compliance with the legislation by drawing upon existing members of VITL's Board of Directors, Advisory Group, subcommittees, and other representatives from participant organizations. Currently there are more than 30 members (see Appendix C for a complete listing) representing a broad range of interests. The Workgroup serves in an advisory capacity to the VITL Board of Directors which submits its recommendations to the legislature. The

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<sup>1</sup> United Health Foundation, "America's Health Rankings," 2006 Edition  
<<http://www.unitedhealthfoundation.org/ahr2006/>>.

<sup>2</sup> eHealth Initiative, "Vermont Gov. Douglas honored by eHealth Initiative for contributions to electronic health information exchange," 26 Sep. 2006 <<http://www.ehealthinitiative.org/news/douglas.msp>>.

<sup>3</sup> Original <<http://www.leg.state.vt.us/statutes/fullsection.cfm?Title=18&Chapter=221&Section=09417>> and amended <<http://www.leg.state.vt.us/docs/legdoc.cfm?URL=/DOCS/2006/ACTS/ACT215.HTM>> legislation.

## Vermont Health Information Technology Strategic Plan

Agenda for December 6, 2006 10:30am - 12:00pm ET

1. Review last week's meeting.

- Discuss updates to last week's documents:
  - **Overarching Principles Draft**

*Thanks to Margaret Ciechanowicz, Jim Sheldon-Dean, John Evans, Hans Kastensmith, Sandy Bechtel, Maureen Chamberlain, Andrea Lott, Mike Gagnon, Chuck Groh, Francoise Righini, Frank Harris, Jim Hester, Judy Higgins, Dian Kahn, Art Limacher for participating in the listserv this week.*

- **Scope Diagram** and new **High-level Scope Diagram**
- **Force Field Analysis** (only very minor changes this week)

- Additional feedback from: Jim Sheldon-Dean, Maureen Chamberlain.

2. Continue with the Preliminary Plan Outline.

Last week, we discussed how the foundational content that has been constructed over the past few weeks will play a prominent role in the Preliminary Plan:



Figure 1 – Part of a conference call agenda from the VHITP Workgroup website.

Workgroup had its kickoff meeting on November 1, 2006 and has been meeting in person or via teleconference weekly ever since. In October, 2006 HLN Consulting, LLC<sup>4</sup> was engaged to provide facilitation, research, and writing support to this effort. Part of that facilitation includes the maintenance of a workgroup website<sup>5</sup> to manage documents, collect feedback, and post meeting agendas. Anyone can visit the website at any time to obtain an up-to-date status on Workgroup progress.

This document represents the Preliminary Plan established by the legislation:

“On or before January 1, 2007, VTIL shall submit to the secretary of administration, the commissioner, the commissioner of information and innovation, the director of the office of Vermont health access, and the general assembly a preliminary health information technology plan for establishing a statewide, integrated electronic health information infrastructure in Vermont, including specific steps for achieving the goals and objectives of this section.”<sup>1</sup>

A final plan is due to the legislature by July 1, 2007. The VHITP, in addition to the recently published Health Care Reform Five Year Implementation Plan, can be framed within a set of national and regional planning initiatives all with the goal to improve health and the healthcare system.

Workgroup decisions about what should be in the Plan are guided by the requirements in the legislation and the set of principles that have been developed. To reach a consensus, discussions are

<sup>4</sup> See HLN Consulting, LLC website, <<http://www.hln.com/>>.

<sup>5</sup> See Vermont Health Information Technology Strategic Plan website, <<http://www.hln.com/clients/vitl>>.

held in face-to-face meetings, by conference call, through exchange of email on a listserv, and through surveys on the workgroup website.

Sometimes the Workgroup is unable to reach consensus. In those few cases, there is a process for making decisions. The majority's recommendation and the minority opinion or dissenting views will be reported to the VTTL board, which has final authority for deciding what recommendations will be contained in the plan to be submitted to the Secretary of Administration, Commissioner, Commissioner of Information and Innovation, Director of the Office of Vermont Health Access, and the General Assembly.

## 1.2 National HIT Landscape

In 1996, the Institute of Medicine (IOM) launched a concerted, ongoing effort focused on assessing and improving the nation's quality of care, which is now in its third phase. The first phase documented the current state of affairs, concluding that the depth and impact of the nation's healthcare quality problem is "staggering."<sup>6</sup> The second phase presented a framework for understanding the gaps between "good quality care" and current practice, serving as the foundation for a vision of radical transformation of the health care system to bridge the huge gap.

Phase three of the IOM's Quality Initiative focuses on implementation of that vision, identifying 20 priority areas for national action, involving a broad set of stakeholders: clinicians/ health care organizations, employers/ consumers, foundations/ research, government agencies, and quality organizations. Underlying many of these priority areas is an emphasis on the importance of information technology, including electronic medical records and national standards – to promote quality improvements across IOM's six dimensions of quality care: safety, timeliness, effectiveness, efficiency, equity, and patient-centeredness<sup>7</sup>.

During this period many public-private collaborations such as the Leapfrog Group, and the Institute for Healthcare Improvement spearheaded by Donald Berwick began to systematically address the issues of Health Quality. In the public sector, an office for the National Health Information Infrastructure in Health and Human Services (HHS) began the vision of the growth of local health information infrastructures to interoperate within a national network.

At the national level, these efforts converged in President Bush's state of the union address, and in April 27, 2004, when he called for the majority of Americans to have interoperable electronic health records within 10 years and signed an Executive Order for the National Coordinator for Health Information Technology (ONC) and named Dr. David Brailer as its head. In July, 2004, Dr. Brailer issued a progress report, "The Decade of Health Information Technology-Delivering Consumer-centric and Information Rich Health Care."<sup>8</sup>

The report was sub-headed "Framework for Strategic Action," and it set in motion a series of funding opportunities from foundations and government agencies and from the private sector. Among these are the Markle Foundation and Robert Wood Johnson Foundation which established the eHealth Initiative (eHI), in Health and Human Services (HHS), the Agency for Health Care

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<sup>6</sup> Chassen M, Galvin R, "The urgent need to improve health care quality," *JAMA* 1998;280:1000–1005.

<sup>7</sup> Berwick D, "A user's manual for the IOM's 'Quality Chasm' report," *Health Aff (Millwood)* 2002 May-Jun;21(3):80-90.

<sup>8</sup> U.S. Department of Health & Human Services, "Complete Report – The Health IT Strategic Framework," 2004 <<http://www.hhs.gov/healthit/framework.html#report>>.



Research and Quality (AHRQ) and the Health Resources Services Administration (HRSA), and in the private sector Blue Cross/Blue Shield of Massachusetts, all of which awarded grants for pilot projects for electronic exchange of health records among providers or other disease management, patient safety, or quality improvement programs which used health information technology to effect transformations in care or health services.

After the 2004 election, new HHS Secretary Michael Leavitt moved to aggressively advance the President's call for most Americans to have electronic health records within 10 years, with the establishment of a federally chartered advisory committee, the American Health Information Community (AHIC), in September of 2005. Its charge is to provide input and recommendations to HHS on how to make health records digital and interoperable, and assure that the privacy and security of those records are protected, in a smooth, market-led way. The set of current workgroups<sup>9</sup> has grown from the original four to an expanded set below:

- Biosurveillance Workgroup
- Biosurveillance Data Steering Group
- Chronic Care Workgroup
- Confidentiality, Privacy, & Security Workgroup
- Consumer Empowerment Workgroup
- Electronic Health Records Workgroup
- Quality Workgroup

Concurrent with the AHIC work, the Office of the National Coordinator for Health Information Technology (ONC) released Requests for Proposal (RFP) and has awarded contracts to conduct studies or pilots in the areas of standards, interoperability, privacy and security, and identification of lessons learned from early pilots:

- Healthcare Information Technology Standards Panel (HITSP): The American National Standards Institute (ANSI)-led panel charged to develop recommendations for health data interoperability standards.
- Health Information Security and Privacy Collaboration (HISPC): RTI International, a nonprofit research and development institute, to work with 34 states and investigate differences in security and privacy laws across the country.
- Nationwide Health Information Network (NHIN) Prototypes: Four vendor consortia to develop NHIN prototypes.
- System certification: Certification Commission for Healthcare Information Technology (CCHIT) to develop Electronic Health Record (EHR) certification criteria and to certify Electronic Medical Record (EMR) systems.
- HL7: Health Level Seven, an international health standards organization, continues to vigorously develop version 3.0 of its definitive messaging standard for the exchange of structured health information.

Vermont is participating in the privacy and security contract awarded to RTI, and their preliminary findings are significantly informing the Vermont direction. The VHITP is closely following the

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<sup>9</sup> Office of the National Coordinator for Health Information Technology, "American Health Information Community," accessed 18 Dec. 2006 <<http://www.hhs.gov/healthit/ahic.html>>.

outputs of the standards and certification contracts and has included them in the principles for the Plan.

A new vocabulary of acronyms has emerged to describe aspects of these national activities. The terms HIT (health information technology) and HIE (health information exchange) are related but different terms; the first describing the overall technology; the second describing the network for records exchange enabled by the technology. Similarly the RHIO, Regional Health Information Organization, operates the HIEN, Health Information Exchange Network.

What is a Regional Health Information Organization (RHIO)? It is a collaborative organization focused on health data exchange. Its participants include physicians, labs, hospitals, pharmacies, patients, public health, and payers. A RHIO is primarily driven by the private sector, but often has public health involvement, and may even be driven by the public sector. Usually RHIOs are focused on clinical data exchange, but may focus on health services data or providing clinical applications. They can span a metropolitan area, region, a state or a multi-state region. RHIOs operate Health Information Exchange Networks which are technical implementations supporting health information exchange between RHIO participants. Together, interoperating RHIOs and HIENs will form a Nationwide Health Information Network (NHIN).

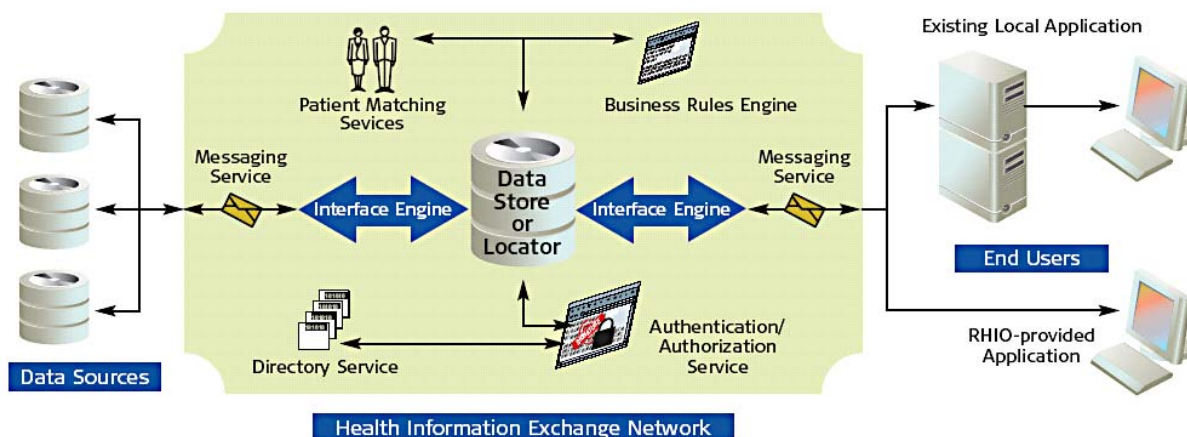


Figure 2 – Health Information Exchange Component Architecture.

Figure 2 displays a typical HIEN architecture composed of the following major components:

**Data Sources:** Systems that provide and/or receive data from the HIEN. Examples include provider-based electronic medical records or practice management systems, immunization or disease registries, surveillance systems, laboratory information management systems, imaging systems or pharmacy information systems.

**Data Store:** Central or distributed database containing patient identification and health information.

**Interface Engine:** Utility that provides translation of standard messages containing patient identification and health information being sent to or from the data store.

**Messaging Service:** System that provides for the secure transport of information in and out of the HIEN.

**Matching Service:** Utility that provides reliable matching and linking of patient information received by the HIEN from disparate sources. A Master Patient Index or Record Locator Service might be major components of this service.

**Business Rules Engine:** Repository for the business rules that control how the HIEN treats data and the business processes it supports. These rules are available consistently to all HIEN applications.

**Authentication/Authorization Service:** Utility that provides reliable identity verification of system users (authentication) and ensures that users access information and services that are appropriate (authorization).

**Directory Service:** Central repository for information about system users. In Vermont, this might incorporate the emerging Master Provider Index.

**End User Applications:** Existing or new applications used to access HIEN patient and health information.

Vermont's health information exchange infrastructure and applications will likely be comprised of similar components. The Final Plan will identify what style of HIEN implementation will support health information exchange in Vermont.

### 1.3 Vermont HIT Landscape

Vermont, in addition to the gubernatorial and legislative initiatives already mentioned, has a great deal of HIT activity in the public and private sectors, all of which needs to be incorporated into the VHITP. Most of these programs depend on electronic capability of providers in general and use of Electronic Health Records (EHR) in particular. The adoption of EHRs in hospitals and in physicians' offices is a prerequisite for full participation. A survey conducted by the Bi-State Primary Care Association<sup>10</sup> found that 67% of rural Vermont primary care practices identified cost as the largest barrier to EHR adoption. Sustainability is also a key issue – training, hardware, productivity effects, and support are identified as barriers in addition to initial costs. Funding will be needed to assist in the adoption of EHR technology, especially in smaller, rural practices. Internet access, preferably broadband, is a minimum requirement but some remote areas of the state are poorly served (Only 54% of rural practices reported to the Primary Care Association that they had broadband Internet access). **The adoption of technology in practices** is a major focus of and challenge for the VHITP and the constituent public health and private sector stakeholders and programs.

<i><b>Selected Findings of Bi-State Primary Care Association Survey, 2005<sup>10</sup></b></i>	
<i><b>Rural practices using:</b></i>	<i><b>Currently</b></i>
Computerized Scheduling	<b>56%</b>
Computerized Billing	<b>63%</b>
Computerized Claims	<b>41%</b>
Practice Management System	<b>40%</b>
Electronic Medical Record (EMR)	<b>24%</b>
Clinical Data accessed electronically	<b>35%</b>
Access to the Internet	<b>72%</b>
A Computerized Registry	<b>16%</b>

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<sup>10</sup> Bi-State Primary Care Association, "Health Information Technology & Primary Care in Rural Vermont: An Assessment and Resource Inventory," Dec. 2005 <[http://www.bistatepca.org/Bi-State Reports.htm](http://www.bistatepca.org/Bi-State%20Reports.htm)>.

A 2006 legislative report by Workgroup member Hans Kastensmith found **26 proposed IT projects among hospitals and health systems**, 10 of which may require health information exchange with external data sources<sup>11</sup>. Ongoing efforts ranging from the deployment of large multi-hospital healthcare information systems, to EMR deployments for hospital-owned physician practices, to medical imaging and archival solutions were documented. Though the pervasiveness of health information technology is not even across the state's hospitals, most have plans to upgrade existing technology in the three-to-five year timeframe.

#### **VITL Initiatives**

1. *Comprehensive Medication History*
2. *Chronic Care Information System (Blueprint)*
3. *Creating a statewide health information exchange*
4. *Health Information Technology Plan*

In November, 2006 a **Health Care Reform Plan** was submitted to the Governor and the Legislature by the Vermont Agency of Administration.<sup>12</sup> Based on a law enacted earlier in the year, the Reform Plan addresses a variety of goals across several areas, including health information technology (HIT). VITL and its medication pilot are specifically mentioned, as is the Blueprint Project and both the preliminary and final Health Information Technology Plans. In addition, several other new HIT initiatives are mentioned, including a health insurance claims database, adverse events reporting to public health, and an advanced directives registry, which are relevant to the overall HIT implementation in the state. It is important that the VHITP co-exist not only with existing statewide efforts, but with emerging projects as well. VHITP must also consider the needs of the **State of Vermont Information Technology Planning and Analysis** which brings with it certain standards and requirements.<sup>13</sup>

**The Comprehensive Medication History** project is part of VITL's ongoing strategy to develop statewide infrastructure for health information exchange. With patient consent, hospital clinicians will be able to electronically access a list of all the medications a patient is taking. Initially it will be available in the emergency departments of two pilot hospitals, the Rutland Regional Medical Center and the Northeastern Vermont Regional Hospital in St. Johnsbury. Following the pilot deployments it will be expanded to all 15 emergency departments in the state.

The **Vermont Blueprint for Health–Chronic Care Initiative** is a public/private collaboration to address the growing health and cost burden of chronic disease. Originally deployed by the Vermont Department of Health (VDH) and the Vermont Program for Quality in Health Care (VPQHC) as a pilot project in two communities, it will be implemented statewide as part of the VITL strategy for a statewide network. VDH conducted a study of the pilot to ensure consistency with statewide initiatives and ultimately contracted with VITL for implementation services for the Chronic Care Information System (CCIS) in 2006. The Blueprint engages patients and their providers in a technology-assisted interactive manner to support healthy life styles and encourage preventive and effective care in the community setting. The Blueprint is a patient-centered initiative and relies on technology tools including centralized information systems, patient follow-up tools and evidence-

<sup>11</sup> Capitol Health Associates, LLC, "State of the State of Healthcare Information Technology in Vermont," Jun. 2006 <<http://www.leg.state.vt.us/CommissionOnHealthCareReform>>.

<sup>12</sup> Vermont Agency of Administration, "Vermont Health Care Reform: Five-Year Implementation Plan," 1 Dec. 2006 <<http://www.adm.state.vt.us/pdf/hcr5-yearstrategicplan.pdf>>.

<sup>13</sup> Vermont Agency of Administration, Office of the Chief Information Officer, "CIO IT Planning and Analysis," <[http://www.cio.state.vt.us/planning\\_and\\_analysis](http://www.cio.state.vt.us/planning_and_analysis)>.

based treatment guidelines, supported by health system organizations and public health. The CCIS is scheduled for deployment in 2007.

Among the most prominent health care cost containment programs is the **Global Commitment to Health**, a Medicaid waiver for restructuring the state Medicaid program and addressing future needs in a holistic, global manner, managed by the Office of Vermont Health Access (OVHA). As reported by Kaiser Foundation, “This waiver makes Vermont the only state in the nation with a fixed dollar limit on the amount of federal funding. In exchange for taking on the risk of operating under a capped funding arrangement it gives Vermont a new flexibility to use Medicaid funds more broadly and to maintain and improve its public health care coverage and provide more effective services and to reduce the number of uninsured.”<sup>14</sup> The nation will be watching Vermont’s experiment as well as the electronic tools it employs to manage the new program. The **Global Clinical Record** (GCR) system is the means by which operational functions are performed to support chronic care management and specialized services, such as prior authorization, EDSDT preventive care reminders for screening and related reports. Envisioned are enhanced functions such as beneficiary online status check. Among the challenges would be deploying this system at the practice level, while at the same time practices may be engaged in acquiring or using other EHR, case management or practice management technology and interacting with the Blueprint or other programs.

The **Vermont Immunization Registry** was established by state law in 1997. It was designed, developed, and is operated by the Vermont Department of Health, which contributes its extensive knowledge in health surveillance, vital statistics, technology, and immunization<sup>15</sup>. The Registry relies on immunization administration records and histories entered by health providers, primarily in ambulatory settings. The Registry is web based, and increasingly, providers with electronic practice management and EHR systems are demanding bi-directional standards-based records interchange, at minimum and fuller integration with their own systems as more ideal. Immunization information is a required element in the Personal Health Record (PHR) and adult flu, pneumonia and some other vaccinations are required elements for chronic disease management, as well as for the Medicaid EPSDT program and school entrance.

The Vermont Department of Health is engaged in a set of **Public Health Preparedness and Response Activities** based on national Centers for Disease Control and Prevention programs of disease surveillance, emergency preparedness and response to natural or bioterrorism events, flu pandemic planning and the development of a health alert network. These systems, operated by the VDH, rely on information from laboratories, hospitals and private providers and need to support bi-directional exchange for some of these programs. These programs need to be integrated into the VHITP, especially to avoid duplicate data entry and different technologies for reporting.

The **Northeast Community Laboratory Alliance (NECLA)** is an affiliation of community-based hospital laboratories in Vermont, formed in 1996 in collaboration with Mayo Medical Laboratories of Rochester, Minnesota. This program already supports laboratory data interchange among the Vermont hospitals and is an enabling technology for the Blueprint and public health surveillance.

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<sup>14</sup> Guyer, J, “Vermont’s Global Commitment Waiver: Implications for the Medicaid Program,” The Kaiser Commission on Medicaid and the Uninsured, Apr. 2006.

<sup>15</sup> Vermont Department of Health, “Registry Overview,” accessed 18 Dec. 2006  
<<http://healthvermont.gov/hc/vtimms/overview.aspx>>.

Contributing to the success of Vermont's larger plans are three **AHRQ projects**, one each at Southwestern Vermont Health (Improving Healthcare Quality via Information Technology), Mt. Ascutney Hospital and Health Center (Improving Rural Health Care: Implementing Innovative Integration Solutions), and Central Vermont Medical Center (Community Electronic Health Record). At the Northeast Health Care Quality Foundation – the Quality Improvement Organization (QIO) for Maine, New Hampshire, and Vermont – there is a project funded by the Doctor's Office Quality - Information Technology (DOQ-IT) program. DOQ-IT is a national initiative sponsored by the Centers for Medicare and Medicaid Services (CMS) that promotes the adoption of information technology in the outpatient setting, particularly EHRs. There are also a number of rural and community health initiatives, including the Windsor Community Health Initiative (WCHI) which is focused on improving infrastructure for better coordination of care in the Vermont towns of Windsor, West Windsor, Weathersfield, and Hartland.

The **Vermont Coalition of Clinics for the Uninsured** supports free clinics which “provide a range of primary and preventive health care services, including women's health services; physical therapy; nutrition counseling; mental health services; anonymous HIV testing and counseling; and referrals to specialized care, laboratory services, and x-rays.”<sup>16</sup> Finally, **Creating Healthy Adolescents-A Model Prevention Project** (CHAMP) is developing a new model for foster-home health services to reduce substance abuse among children in foster care.

To address a problem that spans virtually all health information exchange projects, the legislature called for a workgroup to be formed to make recommendations regarding the creation of a **Master Provider Index**. The Master Provider Index (not to be confused with Master Patient Index, a common HIE component with the same acronym) would be a database designed to provide consistent, uniform provider identification and cross-reference to HIT projects throughout the state. The University of Vermont College of Medicine (UVM) Area Health Education Centers (AHEC) Program convened the workgroup<sup>17</sup>, which consists of representatives from a number of other ongoing HIT initiatives including at least five VHITP workgroup members.

The Workgroup expects that all of the abovementioned entities and initiatives will, to varying degrees, inform the Plan, and conversely will be impacted by the Plan. The nature of the relationship between some of these entities – particularly those singled out for integration by the legislation – and the VHITP is explored in more detail in Section 4.1 (Related Projects and Initiatives).

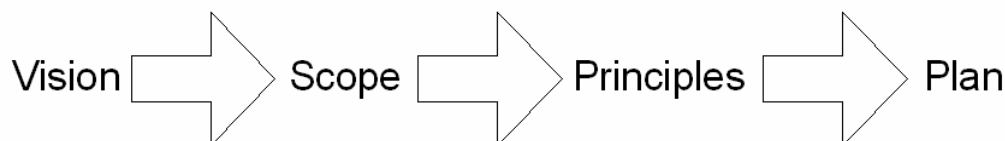
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<sup>16</sup> Rural Assistance Center, “Vermont Coalition of Clinics for the Uninsured,” accessed 18 Dec. 2006 <[http://www.raonline.org/success/success\\_details.php?success\\_id=130](http://www.raonline.org/success/success_details.php?success_id=130)>.

<sup>17</sup> University of Vermont College of Medicine Area Health Education Centers, “Master Provider Index,” accessed 18 Dec. 2006 <<http://www.med.uvm.edu/ahec/TB8+BL+I.asp?SiteAreaID=291>>.

## 2 Roadmap

The Workgroup is proceeding within a structured roadmap in order to develop the foundation of the Preliminary Plan and ultimately the VHITP itself.



**Figure 3 – Project Roadmap.**

Three key components are being defined in advance of the Plan:

*Vision:* A succinct articulation of the desired end-state of HIT deployment in Vermont. The vision speaks to as many stakeholders as possible, and be durable through the trials and tribulations of the project’s development.

*Scope:* The boundaries within which the vision will be discussed and implemented based on stakeholders and functions.

*Principles:* Share beliefs about health information technology that help establish both shared understanding and shared language, and serve as a guide for the elements of the Plan.

The outline for the Plan itself is discussed in a separate section below.

### 2.1 Vision

The Workgroup’s vision for Health Information Technology for the State of Vermont is as follows:

*Our vision is for a healthier Vermont, where shared health information is a critical tool for improving the overall performance of the health care system. The health care community will work together to achieve new efficiencies through the use of information technology in order to deliver better overall value and care to our citizens.*

Information technology cannot work in a vacuum. For this vision to be fulfilled, and for the Plan to be successful, stakeholders must examine how they *use* information technology to deliver their services and serve their clients in a more cooperative way. We recognize that to many stakeholders health care is a business, and we must be sensitive to the realities of the marketplace and its effect on cooperation.

Key concepts surrounding the Vision related to quality of care improvement, greater efficiency, better control of costs, reduction in redundancy of services delivered to patients, all with measurable observations if possible. Some of these key concepts were incorporated by the Workgroup into the principles.

## 2.2 Scope

A key element in the Workgroup's discussion was the appropriate scope for the Technology Plan. Health Information Technology (HIT) is the infrastructure and data that helps to automate health care processes. It can be found within the many stakeholder organizations relevant to healthcare, and even by extension includes the information technology capabilities of patients and other citizens. Health Information Exchange (HIE) is the part of HIT that enables interoperability between systems and organizations. Together, through proper investment, they provide opportunities to improve the overall health care system represented by the outcomes in the diagram below.

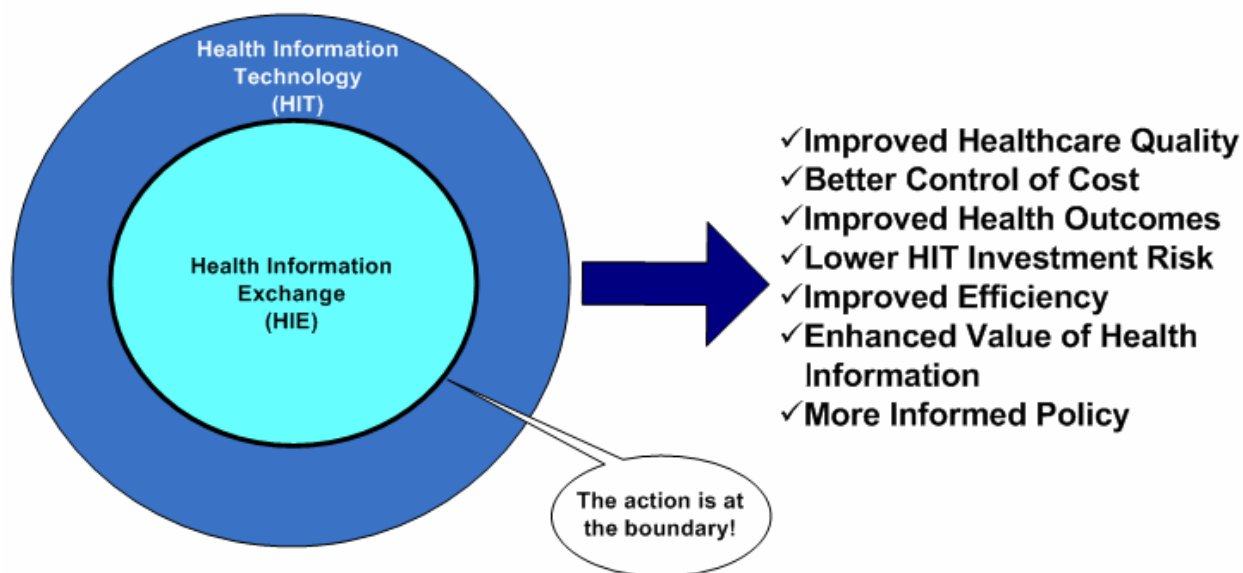


Figure 4 – Overall Project Scope.

Figure 4 is presented to show the relationship between “Health Information Technology” (HIT, in the outer ring) and “Health Information Exchange” (HIE, in the inner ring). The boundary between the two is where the action is: the Technology Plan must balance a desire to guide the stakeholders to implement compatible systems and data while not being too intrusive on their right to determine the best technological course for their organizations or interests. Vermont’s Health Information Technology Plan will offer strategies for promoting the broad adoption of HIT (including HIE) and criteria for the compatibility of stakeholder HIT investment decisions with the state’s direction. The challenge is finding the right balance between the two.

It is important to note that although VTTL plays an important role in the facilitation of HIE as well as in the development and implementation of the Plan, the scope of the Plan is not limited to VTTL activities but is intended to be a statewide plan to cover a broad range of HIE and HIT activities across a variety of stakeholders.

And the stakeholders are both numerous and diverse, as displayed in Figure 5.



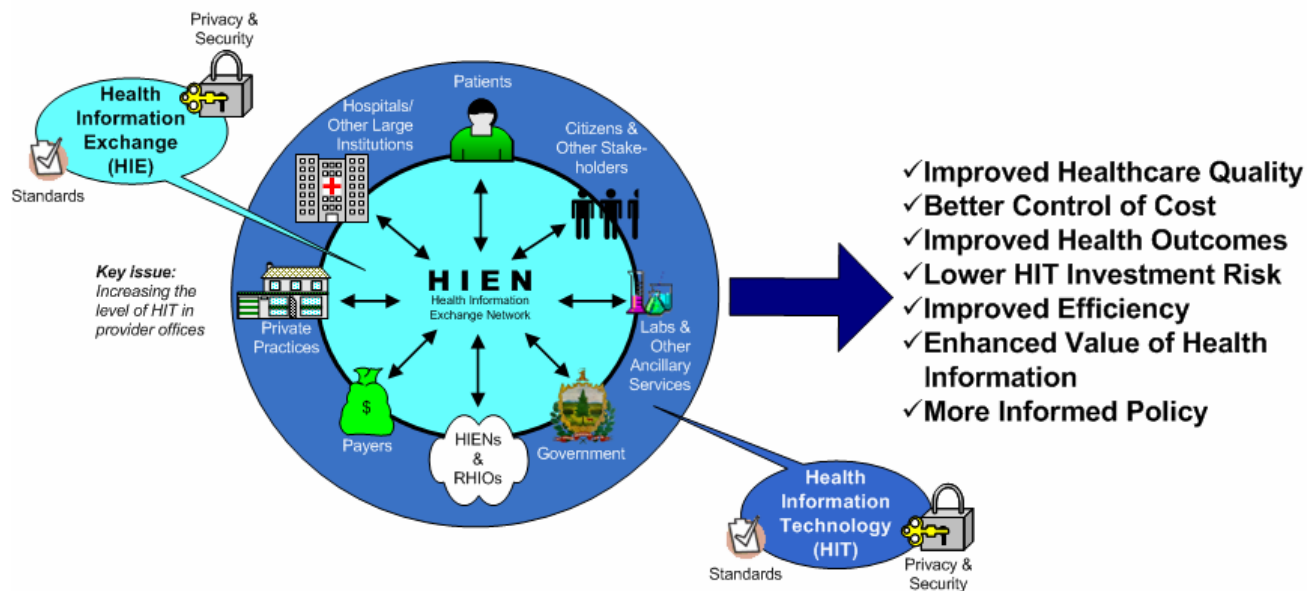


Figure 5 – Detailed Project Scope.

They range from patients, health care consumers, and citizens; to health care providers large and small (hospitals and other large institutions, private providers), payers, laboratories and providers of other ancillary services, government at all levels (local, state, federal); as well as existing and emerging health information exchange initiatives in Vermont and neighboring states.

At the center, the Plan will describe infrastructure for a Health Information Exchange Network (HIEN). This will likely include many of the technology components illustrated in Figure 2 in Section 1.2. Moving outward from the center, the Plan will focus on standards and other key issues related to HIE, such as privacy, security, governance, and data ownership.

Standards for HIT in general, and HIE in particular, ensure that investments by different organizations are made consistently. Standards ensure that different systems within different organizations interoperate – that they are able to exchange health information in a consistent format *and* with consistent terminology and meaning. Just as postal mail can be exchanged world-wide through a consistent set of standards (addressing, size, postage and payment), so, too, can health information be exchanged despite its inherently more complex and diverse nature.

Towards the outer edge of the circle, the Plan will maintain a balance between setting standards for HIT solutions and preserving organizational autonomy. Early in its process, the Workgroup recognized that the Plan could not possibly cover *all* aspects of health information technology across *all* stakeholders. Often, the boundary is at the *application*: the Plan may define security standards and data exchange protocols for a particular class of clinical applications, for example, while not dictating any particular look-and-feel or promoting any particular product. One area of possible exception is related to the adoption of electronic medical records in small private provider offices: Increasing the penetration of HIT among small practices is a key focus of the Plan and this may involve detailed recommendations at the application level.

## 2.3 Principles

Principles are a set of basic, but shared, beliefs about health information technology and its role in the State. These beliefs, negotiated among the stakeholders, flow from the Vision and Scope and form the conceptual basis for moving ahead and developing the Plan. Over the course of several meetings, the Workgroup drafted, discussed, and ratified a comprehensive set of nearly forty principles statements. They are organized under five overarching principles (see full list in the Appendix A):

- I. Vermonters will be confident that their health care information is secure and private and accessed appropriately.
- II. Health information technology will improve the care Vermonters receive by making health information available where and when it is needed.
- III. Shared health care data that provides a direct value to the patient, provider or payer is a key component of an improved health care system. Data interoperability is vital to successful sharing of data.
- IV. Vermont's healthcare information technology infrastructure will be created using best practices and standards, and whenever possible and prudent, will leverage past investments, and will otherwise be fiscally responsible.
- V. Stakeholders in the development and implementation of the health care technology infrastructure plan will act in a collaborative, cooperative fashion to advance steady progress towards the vision for an improved healthcare system.

## 3 Plan Outline and Features

### 3.1 Development of the Outline

The legislation which authorizes this project identifies eight key elements that must be contained in the final Plan, including:

- (1) Supporting the effective, efficient, statewide use of electronic health information in a variety of settings;
- (2) Educating the public and health care professionals about electronic health information (eHI);
- (3) Promoting the use of national standards for interoperability;
- (4) Proposing strategic investments;
- (5) Recommending funding mechanisms;
- (6) Incorporating existing health care information technology initiatives;
- (7) Integrating the HIT components of existing initiatives; and
- (8) Addressing issues related to data ownership, governance, and confidentiality and security of patient information.

#### ***HIT plans reviewed***

- *Arizona*
- *California*
- *Federal Health Information Exchange*
- *Florida*
- *Minnesota*
- *Rhode Island*
- *Texas*
- *Utah*
- *Wyoming*

The Workgroup reviewed eight State plans plus the architecture of the Federal Health Information Exchange in the course of developing an outline for the final Vermont Health Information Technology Plan. The plans ranged between several months and several years old, and varied greatly in their content, organization, and comprehensiveness. An analysis was conducted with a number of the plans, identifying the elements in common and the overlap between the items identified in the Vermont legislation and key elements in the State plans. A matrix was developed to map these elements together. The result of this analysis was a set of Plan sections that the Workgroup feels best represent the needs of the State within the guidelines provided in the legislation.

The major health IT initiatives highlighted by the legislature for inclusion in the Plan include the Blueprint project and the associated Chronic Care Information System (CCIS), the Global Clinical Record (GCR) and all other Medicaid management information systems being developed by the Office of Vermont Health Access, the information technology components of the Quality Assurance System, the program to capitalize electronic medical record systems in primary care practices with loans and grants, and the current VTTL pilot data sharing program.

The Workgroup's challenge is to develop a health information technology plan that is in line with national standards and efforts in other states but also takes into account the current landscape and provides leadership that is relevant to the ongoing initiatives and legislative priorities.

### 3.2 Audience

The enabling legislation requires the VHITP to be officially presented to the legislature, BISHCA, OVHA, and the Department of Information and Innovation (DII). However, the Workgroup recognizes that the audience is much broader than just those entities. In fact, the audience

encompasses all of the players surrounding the scope of the Plan as described in Section 2.2: Patients and citizens, physicians, hospitals and other large health care institutions, payers, government including public health and Medicaid, laboratories and other ancillary services, and other health information exchanges both within and outside the state. The Workgroup consists of representatives from many of these entities but so far has failed to get sufficient feedback from all listed groups, especially the public and individual physicians. The HISPC initiative, proceeding in collaboration with the Workgroup, has engaged consumers and physicians as described in Section 4.3; but more needs to be done. A process for soliciting and integrating Preliminary and Final Plan feedback – both from the “official” audience including the legislature, and from citizens, physicians, and other interested parties not in the workgroup – must be formalized as part of our development of the Final Plan

### 3.3 Brief Review of Proposed Plan Sections

The following is a brief description of the proposed sections of the Final Plan:

- (1) Executive Summary – The Executive Summary serves as the overview for the Plan. It identifies major findings and major recommendations. It should be succinct enough for most readers to understand without additional explanation.
- (2) Environment – This section will describe the healthcare environment in Vermont as well as the HIT environment in Vermont that serve as the backdrop for this project. The Five Year Implementation Plan for Vermont’s Health Care Reform may play a vital role in this section.
- (3) Vision – Similar to the vision section of this Preliminary Plan, the vision section of the Final Plan will describe the desired end-state of HIT deployment in Vermont. In the Final Plan this will include a set of use narratives to help illustrate the outcomes and benefits.
- (4) Strategy and Objectives – This section will describe the strategies recommended to fulfill the vision described in the previous section. Particular emphasis will be placed on existing, complementary projects identified in Section 3.1 of this Preliminary Plan. The reader should become clear that all these efforts – disparate as they may seem – support a unified vision. A set of objectives – milestones or metrics that together help signal a successful implementation of the vision – will be identified. The role of stakeholders – health care consumers and patients, private practices, hospitals and institutions, payers, government and public health, laboratories and ancillary services, and other health information networks – in implementing the vision is laid out with particular attention paid to the barriers that work against achieving the objectives.
- (5) Standards – Standards will play an important part in fulfilling the vision across the many independent health care organizations. Standards help to ensure that different systems can exchange health information with one another even if they were developed independently. The Workgroup tracks efforts at the national level to define appropriate standards within the health care community, and the Plan will incorporate relevant standards – in areas such as messaging, terminology and coding, and security. While the Workgroup understands the potential benefit of standards, it is also sensitive

to the challenges related to standards adoption, including the potential for conflicts across standards in different domains as well as incompatible implementations of standards.

- (6) Technology – The Technology section of the Plan will define the technical architecture for health information exchange in Vermont, detailing the core components that together will constitute Vermont’s HIEN. Components such as those illustrated in Figure 2 in Section 1.2 will be considered. Some specific technologies will also be recommended for deployment across the projects that will make up the strategies of the Plan. Our Principles will help guide decisions in this area, including how to make progress today without sacrificing flexibility tomorrow.
- (7) Privacy, Security, and Data Ownership – Legally and ethically, we must consider the impact of any information collection and exchange on the rights of Vermonters and providers. Particular attention will be placed on addressing these issues; our Principles already lay the groundwork for this consideration and identify it as a top priority. Among healthcare professionals, patients, and other stakeholders there is considerable sensitivity around issues related to patient information access – who has access, to what information, and for what purposes. This is a complex, pervasive topic relevant across Plan sections and across all HIE and HIT efforts. It is the focus of the Health Information Security and Privacy Collaboration (HISPC) initiative which is proceeding in collaboration with the Workgroup.
- (8) Education – The concepts introduced to the Plan will be far-reaching, and may be new to many stakeholders. A concerted effort to educate various groups and constituents is an important element of the Plan, particularly as it relates to the benefits of electronic health information as well as the issues surrounding privacy and security. As part of the Plan development itself, this includes the creation of infrastructure to solicit and accept Plan feedback and the publication of specific white papers on specific complex issues such as “patient centeredness” and “patient control.”
- (9) Funding/Financing – It will take concentrated investment to fund the HIT strategies that will develop from the Plan. The challenge is to respond to whatever constraints are supplied by the Legislature and develop programs that can work within these constraints. The project is committed to using HIT to improve the value of the health care delivery system. This may or may not lower costs overall. As requested by the legislature, “The plan shall include also recommendations for self-sustainable funding for the ongoing development, maintenance, and replacement of the health information technology system.”<sup>18</sup>
- (10) Governance and Accountability – A section of the Plan will be dedicated to the issues related to governance and accountability. Governance in this context includes both the policies and processes related to the implementation of statewide HIE infrastructure as well as to the Plan itself. As noted in the principles, the Plan will be a living, evolving document once it is released. Policies and procedures related to the maintenance of the Plan play an important role in requirement that the Plan serve as a framework within

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<sup>18</sup> 18 V.S.A. § 9417.

which Certificate of Need applications are reviewed by BISHCA, which will also be detailed in this section.

- (11) Implementation – A roadmap for implementation is a critical part of the Plan as it will summarize recommendations from the previous sections and place them in the context of a recommended implementation timetable, identifying dependencies between strategies.
- (12) References – A glossary, as well as a listing of important references from many different types of sources, will round out the research of the Plan.

## 4 Key Issues

An initial set of “key issues” has been identified and explored in this Preliminary Plan. These issues include security and privacy, standards, provider HIT adoption, institutional HIT investment, as well as the needs and interdependencies between various stakeholders. The role that VITL will play in the implementation of Plan recommendations, particularly involving the delivery of statewide health information exchange services, is a crucial issue that the Workgroup has discussed and will continue to work on during the development of the Final Plan. The group has also identified certain areas that require further development or deliberation before moving forward. For example, a process for soliciting and integrating feedback – from the legislature, the Governor, and from ordinary citizens – must be formalized. And certain complex topics such as “patient centeredness” and “patient control” must be better defined as part of an educational strategy before they are put in front of stakeholders for feedback.

### 4.1 Related Projects and Initiatives

Of the relevant initiatives outlined in Section 1.3 (Vermont HIT Landscape), Medicaid and its affiliated projects, Blueprint CCIS, VITL’s Medication History pilot, the HISPC project, and the Master Provider Index workgroup already play a central role in workgroup deliberations and as members of the VHITP Workgroup itself. Obviously, BISHCA plays a central role as well based on, among other things, its legislative responsibility and the Certificate of Need process. Other initiatives from Section 1.3 will be considered as part of the creation of the Final Plan but have not yet been discussed in detail by the workgroup at this point in the process.

### 4.2 Standards and Architecture

The Plan will not set out to architect individual technical solutions for all relevant initiatives but aims to provide a framework for electronic health information initiatives. For example, the Office of Vermont Health Access (OVHA) is actively involved in the Workgroup and in the development of the Plan. While the Global Clinical Record (GCR) system plays a central role in meeting specific operational needs of the Medicaid program, the nature of OVHA’s relationship to the Plan and its development encompasses a broader set of goals. Throughout the development of the Plan, OVHA will map high-level business needs to the infrastructure described in the Plan to ensure its consistency with program initiatives and priorities. The Plan will lay out standards and protocols and an infrastructure for information sharing that is consistent with the Workgroup’s vision, the legislation and the principles but must also be compatible with Medicaid’s program needs. As with all stakeholders, Vermont Medicaid expects the Plan to be one of the key touchstones for evaluating new projects and vendors.

Standards play an important role in the Plan framework. As described in core principle IV and supporting principles 20, 25, and 32, the Plan will adopt standards whenever possible to facilitate especially HIE and some areas of HIT in general.

A key issue related to standards is the interdependency between Vermont’s HIE/HIT goals and the requirements of federally administered programs. National requirements are imposed on state and local government organizations that administer public health and healthcare assistance programs.

The importance of considering this interdependency is exemplified in the Public Health Information Network (PHIN)<sup>19</sup>, a maturing national standard. PHIN is CDC's vision for organizing, standardizing, and managing the collection and dissemination of public health information. It requires the use of fully interoperable information systems in the many organizations that participate in public health. PHIN requires policy, technology, and vocabulary standards for interoperability between public health agencies, CDC, private health entities, and other national, state, and local organizations.

Another federal standard is the Medicaid Information Technology Architecture (MITA)<sup>20</sup> standard which is intended to promote integrated business and IT across the Medicaid enterprise to improve the administration of the Medicaid program. During the development of the Final Plan, the workgroup will evaluate the MITA Framework 2.0 requirements to ensure that VT's HIE infrastructure will meet the MITA interoperability requirements and its guidelines for state and federal policies and legislation.

The VHITP workgroup is sensitive to the interdependency of national and state requirements and standards. The diverse experience and contribution of the workgroup represents both private and government perspectives. A fertile communication mechanism has evolved encouraging discussion, idea sharing, and consensus building. Group and individual discussion occurs across private and public boundaries. This open discussion, idea sharing, and consensus building process will ensure that the aforementioned interdependencies are seriously considered as a key issue in the Plan.

### 4.3 Security and Privacy

Ensuring that electronic health information is secure and protected is perhaps the single most critical challenge for a health information technology infrastructure. Without confidence in the security of health records, public support for statewide efforts related to electronic health information will quickly deteriorate.

The security and privacy issue spans the technical, political, legal, and medical domains, and at its core attempts to balance two conflicting priorities: the desire to share health information for the purpose of improving care, and the importance of protecting health information in a manner consistent with a complex set of requirements. Understanding those requirements – which include laws at the federal and state levels, policies across various health care organizations and expectations of patients and their caregivers – is a key part of the challenge.

As part of its strategy for implementing a national health information network, the U.S. Department of Health and Human Services is identifying and addressing variations in privacy and security practices. These variations occur both in organizational business policies and state laws.

In June 2006, VTTL was awarded a contract from the Agency for Healthcare Research and Quality (AHRQ), which is working with the National Governors Association, to assess privacy and security issues in Vermont. During the fall of 2006 VTTL's Health Information Security and Privacy Collaboration (HISPC) team conducted group discussions and one-on-one interviews with

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<sup>19</sup> See Public Health Information Network website, <<http://www.cdc.gov/PHIN>>.

<sup>20</sup> See Medicaid Information Technology Architecture website, <<http://www.cms.hhs.gov/MedicaidInfoTechArch>>.



approximately 40 different individuals to collect information about operational practices related to the current exchange of health information in paper or electronic form.

The team was able to document variations in business practices and barriers to privacy, security, and health information exchange. Health care professionals and representatives of consumer groups were convened to discuss the preliminary scope of the project and the team identified a number of important themes relevant to the Health Information Technology Plan.

Several significant initiatives are emerging from the HISPC and VTTL collaboration. These include putting in place a process for receiving input from consumers and health care practitioners and reaching consensus, developing recommendations related to privacy and security, providing input on technical architecture, and working with various groups to find a balance between patient privacy and the appropriate level of physician access to records.

VTTL has included HISPC team members in weekly meetings with the Vermont Health Information Technology Plan workgroup to promote collaboration on privacy issues. In addition, VTTL is coordinating joint meetings of all Vermont health information technology initiatives, including the Global Clinical Record and the Blueprint for Health, to ensure that all programs are well informed about privacy and security issues.

## 4.4 Key Stakeholder Groups

The Workgroup has examined several key stakeholders in its discussions thus far, spanning patients and providers, small practices and large institutions, government and payers, and other groups shown in Figure 6.

### 4.4.1 Patients, Citizens, and Consumers

Health care **consumers** are not necessarily **patients**; **citizens** are not necessarily **consumers**. Consider:

- The son or daughter of an elderly parent in a nursing home, for example, may be a health care consumer while not simultaneously being a patient.
- Recommendations made in the Plan and laws enacted by the legislature may be evaluated by the public not necessarily as potential health care patients or consumers, but as tax-paying citizens.

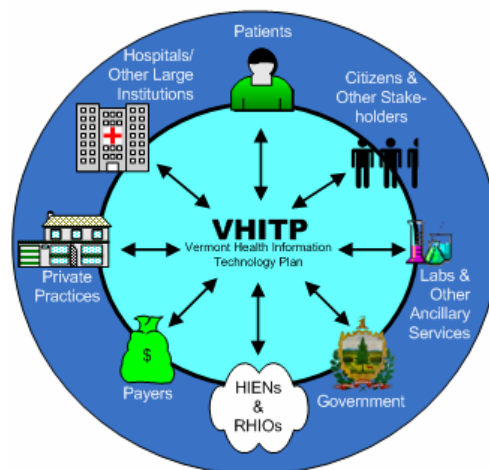


Figure 6 – Plan stakeholders.

The interests of these three groups – consumer, patient, and citizen – are not always the same. The patient, for example, may place more value on privacy than the consumer; the citizen may place more value on cost effectiveness than the patient. Thus, the Workgroup recognizes that while any given individual may be a patient, a consumer, and a citizen at the same time, the three categories essentially represent different stakeholders. A mechanism for soliciting and managing patient, consumer, and citizen input into both the Final Plan and beyond the publication of the Plan is needed, and will be utilized in conjunction with the Education recommendations in the Final Plan.

Whether the patient is the **central** figure amongst all parties, and what it might mean for health information technology initiatives to be “patient-centered” has been explored by the Workgroup. In the clinical setting, patient-centered care relates to a method of patient interaction on a more personal level with the goal of improving patient satisfaction and outcomes. For many physicians, patient-centered care is a core value<sup>21</sup>, though there is some variability in what exactly patient-centered care means and how it can be measured<sup>22</sup>. We encounter the same challenge in the context of HIT and HIE. In its evaluation of plans and initiatives in other states, the Workgroup found varying degrees and definitions of patient-centeredness in health information technology. Patient-centric HIT may be associated with any of the following:

- Some degree of patient control over electronic health information (for example, what information is stored, how it is shared, or who it is shared with).
- Electronic health information systems designed for use by the patient as opposed to the physician (such as web-based patient portals).
- Improved patient satisfaction with the health care system (for example, as a result of a decrease in duplicate laboratory tests due to better information management).
- The ability to enhance patient-centric care through information technology (such as through improved patient-doctor communication).
- Improved clinical outcomes as a result of better information at the point of care.

The workgroup concluded that patient-centeredness is an important but complex issue that merits further study. Because we expect that most stakeholders would agree that HIT should be patient-centered, yet few would agree on what exactly that means or how it could be measured, the concept should play a prominent role in the Plan’s educational strategy, including perhaps the development of a white paper to explore the issue in more detail.

#### 4.4.2 Hospitals and Other Large Institutions

Hospitals and other large institutions tend to have well established HIT program, and this is generally true in Vermont. Yet even these institutions can benefit from statewide direction. Some strategies discussed by the Workgroup that might help them head in the right direction include:

- Provide a technology plan to guide hospital investments in clinical and administrative systems.
- Provide hospitals and providers with a review process or processes for HIT and/or HIE projects. Consider whether such processes should be formal or informal. Consider what weight such processes should have in the Certificate of Need review process.
- Provide a State-wide MPI and interchange infrastructure for sharing data such as DICOM images, lab results, EKG’s, medications, etc.
- Provide standards for data interchange with other hospitals, providers and payers.
- Provide an authentication mechanism (e.g., single sign on) for user validation.
- Provide a translation service (vocabulary) for procedures.

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<sup>21</sup> Stewart M, Brown JB, Donner A, McWhinney IR, Oates J, Weston WW, Jordan J, “The impact of patient-centered care on outcomes,” *J Fam Pract.* 2000 Sep;49(9):805-7.

<sup>22</sup> Beach MC, Saha S, Cooper LA, “The Role and Relationship of Cultural Competence and Patient-Centeredness in Health Care Quality,” *Commonwealth Fund Report* Oct. 2006.

- Provide incentives for re-use of information.
- To help ensure sustainability, provide appropriate funding to organizations supplying these and other HIE/HIT services.

### 4.4.3 Smaller Private Practices

The ability to exchange electronic health information rises and falls with the presence of health information in electronic form to begin with. In many cases, the weakest link is the small private practice, where a strong business case has not yet been made for the investment in electronic medical record (EMR) systems. A recent study by the Center for Studying Health System Change shows that while the proportion of physician practices exchanging clinical data has risen from 2001 to 2005, there is a widening gap between small and larger practices.<sup>23</sup>

The Workgroup considers the plight of small private providers to be significant enough as to warrant special attention and consideration in the Plan. Strategies need to be developed to encourage HIT adoption in general, and participation in HIE specifically. As part of its analysis, the Workgroup completed a Force Field analysis to help capture the driving and restraining forces towards small practice participation in HIE.

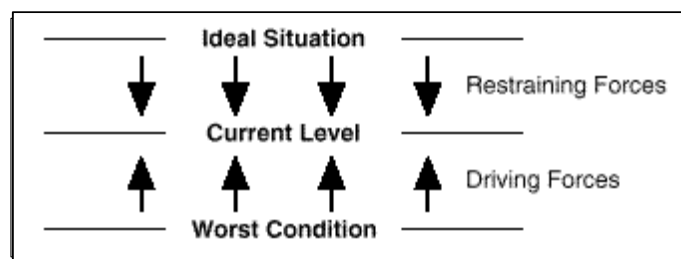


Figure 7 – Force Field Analysis Methodology.

In this methodology, driving forces push a situation towards the best possible outcome. Restraining forces push in the opposite direction towards the worst possible outcome. The current situation exists because of this equilibrium. The goal is to reduce the number and power of the restraining forces through some mitigating action while increasing the number and power of the driving forces to push to the desired outcome.

Figure 8 captures the Force Field Analysis for small private practice HIE participation:

<sup>23</sup> Grossman JM, Reed MC, “Clinical Information Technology Gaps Persist Among Physicians,” Center for Studying Health System Change Issue Brief No. 106, Nov. 2006.

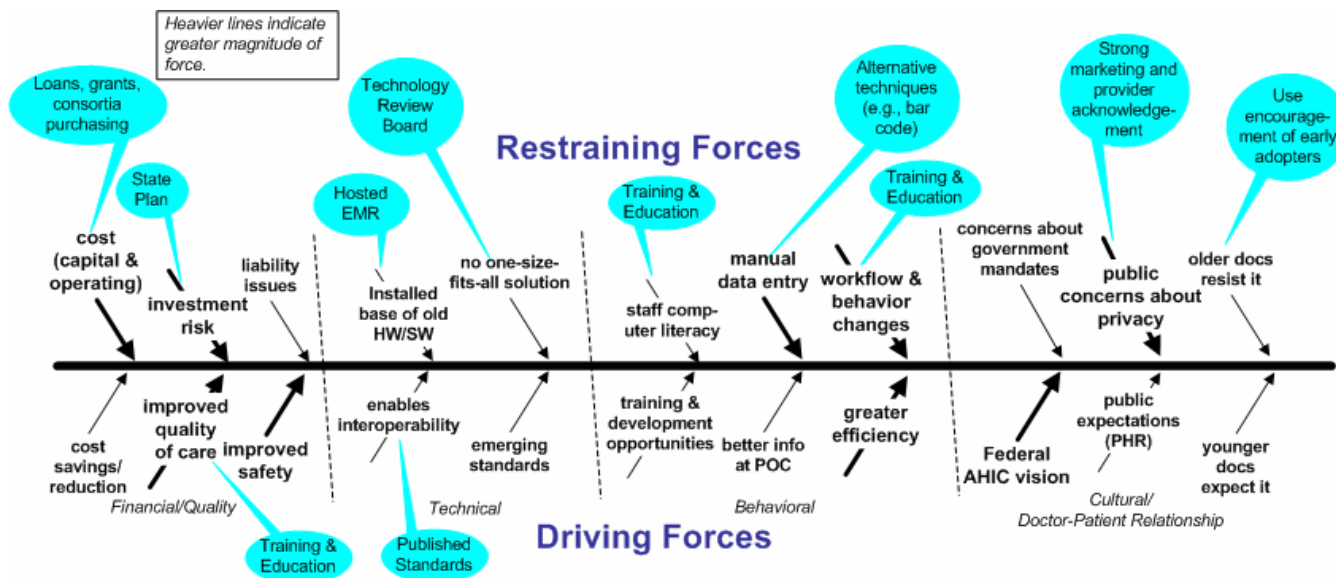


Figure 8 – Force Field Analysis.

While appearing complex at first, this diagram is fairly straightforward to understand. Driving forces are on the bottom; restraining forces are on the top. The forces are divided into four groups of factors: those related to Financing and Quality; Technical factors; Behavioral factors; and those relating to organizational culture, in particular the doctor-patient relationship. Thicker lines mean the force of the factor is considered stronger. The driving and restraining forces are purposefully paired: each driving force is matched with a corresponding restraining force, though they may not be of the same magnitude. Finally, the balloons contain mitigating strategies that can work against these forces, driving or restraining.

Based on this analysis the Workgroup will develop specific strategies as part of the Plan to enable greater private practice participation. A number of preliminary ideas were discussed, including:

- Provide low cost loans to providers for EMRs (temporarily funding by State).
- Provide technical and operational assistance to practices.
- Provide incentives for re-using data rather than repeating services (for example, provide a CPT Code or modifier to an existing CPT code for “looking up” results versus placing new orders).
- Provide an opportunity for two or three EMR vendors to be the “standard” for VT physician practices. Negotiate with them at State level for volume discounts. Ideally some products should be low cost, perhaps delivered via an Application Service Provider (ASP) model, and some more functional.
- The statewide health information technology plan will provide interchange standards and describe an infrastructure for HIE including an MPI, RLS, Master Procedure Index (Translation Services), and Network Connectivity.
- To help ensure sustainability, provide appropriate funding to organizations supplying these and other HIE/HIT services.

#### 4.4.4 Laboratories and Other Ancillary Services

Ancillary services are important providers and consumers of electronic health information. Diagnostic services such as laboratory and imaging, as well as treatment services including pharmacy, physical therapy, rehabilitation, health education, nutrition counseling and weight-loss all play a role in the health information exchange infrastructure that will help to achieve the vision laid out in the Plan. Laboratories, imaging services, and pharmacies in particular have been active participants in early health information exchange initiatives in Vermont and elsewhere. Laboratory results in the right place at the right time can help a physician make a timely diagnosis of a chronic illness such as diabetes; the sharing of radiological images across health care providers can help reduce duplicate services; and prescription data available to an emergency department can help avoid life-threatening adverse events. These are just a few of the use narratives among the current and planned initiatives that the Workgroup will integrate into the Plan. The Workgroup includes a member of NECLA and representative from a pharmacy benefit manager, as well as a number of members who work with ancillary services.

#### 4.4.5 Payers

Payers will play an important role in the development of a health information exchange. They will supply claims data to the exchange and benefit from the availability of de-identified clinical data to monitor trends, drive improvements, and enhance wellness programs for their covered lives. Payers can expect that HIE, effectively applied, has the potential to reduce duplicative tests and improve quality. VTTL's medication history pilot project will help payers improve customer satisfaction and cut costs by reducing medication errors. The Blueprint for Health project will improve the treatment of chronic conditions, which are responsible for much of the cost borne by payers.

The workgroup intends to pay close attention to the needs of payers – insurance companies, self-insured employers, and government programs – in the development of the final Vermont Health Information Technology Plan. The workgroup includes a representative from one of the state's largest commercial health plans, and a representative of the Office of Vermont Health Access, which runs the Medicaid program. Input will also be gathered from the Vermont business community.

#### 4.4.6 Government

Government at all levels -- federal, state, and local – plays a role in planning for and participating in infrastructure for electronic health information and health information exchange. Some elements of that involvement have already been covered in this Preliminary Plan, including:

- The National Coordinator for Health Information Technology (ONC) as a planner in standards, funding, and security and privacy.
- Vermont Medicaid as a payer.
- Public Health as a provider of ancillary services.

- Public Health as a provider of ten essential functions<sup>24</sup> spanning surveillance, diagnosis, connecting health care providers, education, and law enforcement.
- The Vermont General Assembly, Governor's Office, and BISHCA in policymaking, planning, and funding; including the development of the Plan and the development of shared infrastructure ranging from telecommunications to health information exchange services.

There are other aspects of government involvement, such as access to the health information infrastructure by municipalities, that have been less prominent in early initiatives and not examined by the Workgroup, but that may be covered in the Final Plan.

#### 4.4.7 Regional and Local Health Information Organizations

HIT and RHIO activity in surrounding states may impact Vermont at the border points, and some RHIO initiatives envision plans to deploy across multiple states. Massachusetts was an early entrant into RHIO activity with multiple sources of foundation, health plan and government funding. It already had the Massachusetts Health Data Consortium which collaborated in the first Markle Foundation report on Connecting Communities for Better Health. The leaders of its pre-eminent health institutions serve on national committees such as the Healthcare Information Technology Standards Panel (HITSP). Its MedsInfo-ED patient safety initiative to automate the transmission and communication of medication history to emergency departments is instructive to the VITL pilot. In all, the state has 11 AHRQ-funded projects; two projects funded by Bridges to Excellence, a non-profit quality organization; one project sponsored by the Doctor's Office Quality - Information Technology (DOQ-IT) program, a national initiative promoting EHRs, six HIEs, two RHIOs, and nine state funded initiatives<sup>25</sup>. eHealth initiative is also assisting with HIE efforts in New Hampshire:

“New Hampshire and the eHealth initiative are working on the New Hampshire Health Care Interconnectivity Project to create a road map for a statewide health information sharing network leading toward a safer, higher quality health care system. The primary deliverables for this work are shared vision for health information exchange in New Hampshire, an assessment of the current HIT adoption and capabilities in the state by all stakeholders, identification of barriers and opportunities specific to New Hampshire, and an examination of the cost/benefit from HIE and potential sustainable model for HIE in New Hampshire.”<sup>26</sup>

As recently reported in *Health Management Technology*<sup>27</sup>, Dartmouth Hitchcock Medical Center in Hanover, N.H. joined with athenahealth Inc. (Watertown, MA), and tested the Web-based athenaNet platform for tracking and monitoring of 100 patients over a wide geographic area in the event of pandemic or natural emergency. The November 15, 2006 disaster exercise was staged to

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<sup>24</sup> Public Health Functions Steering Committee, American Public Health Association, “The Essential Services of Public Health,” accessed 18 Dec. 2006 <<http://www.apha.org/ppp/science/10ES.htm>>. For more information on this topic, see <<http://www.health.gov>>, operated by the U.S. Department of Health and Human Services.

<sup>25</sup> Project statistics on state initiatives based on: Healthcare Information and Management Systems Society (HIMSS), “HIT Dashboard,” accessed 18 Dec. 2006, <<http://www.hitdashboard.com>>.

<sup>26</sup> eHealth Initiative, “Programs: eHealth Initiative’s Technical Assistance to States and Regions: New Hampshire,” accessed 18 Dec. 2006 <<http://www.ehealthinitiative.org/initiatives/programs/aboutstatesummit.msp>>.

<sup>27</sup> “Industry Watch,” *Health Management Technology* Dec. 2006, p. 6.

make sure that real patients could be identified, treated and tracked during an area emergency—and even that the cost of care rendered could be captured for later reimbursement purposes—via a centralized database available to first responders. The test used the vendor’s new Web-based EMR service athenaClinicals, and depending on assessment of its success, it could become the foundation for a new emergency medical response platform for Maine, Vermont and New Hampshire.

New York State has also collaborated with the eHealth Initiative to assist in the development of HIE/HIT strategies in collaboration with a number of ongoing projects in the state, via a summit series and direct engagement of eHI staff:

“The overarching goal of the work of the New York State HIT Summit series has been to engage New York State public policy officials and key stakeholders in the healthcare and business communities in the development of strategies to improve healthcare through health information technology and health information exchange. Other New York regional health information exchange projects have also engaged eHI to assist in their journey of planning for health information exchange and helping them in developing a vision for health information exchange and facilitating the development of an organizational governance model and task group structures.”<sup>28</sup>

Key to the New York activities is the establishment of a capitalized technology fund which awards competitive grants to local initiatives in New York City and throughout the state. New York has a mature private initiative, the Taconic Independent Practice Association (IPA) in Fishkill which was initially AHRQ funded which provides a model for physician management of a shared EHR enterprise. HIMSS reports that NY has four AHRQ-funded initiatives, one Bridges to Excellence project, one DOQ-IT, 24 HIEs, eight private HIT initiatives, four RHIOs and 11 state initiatives, of which the capitalized fund is the major one. Like Vermont, and New Hampshire, New York enjoys leadership from the governor and legislature and has significant department of health collaboration.

Other non-bordering New England states such as Maine, Connecticut and Rhode Island have varying degrees of RHIO and HIEN activity. Rhode Island has an AHRQ grant for a statewide RHIO, and two HIEs. The Rhode Island legislature has authorized a \$20 million bond to establish a statewide repository of electronic health records and is developing a Master Patient Index (MPI) to facilitate interoperability and sharing patient data between public and private health care sectors. Like Vermont, Maine has a Chronic Care Technology Planning Project. It and a grant for improving care in a rural region with consolidated imaging records is funded by AHRQ. Maine has five state initiatives including MHINT, which seeks to establish a statewide electronic health record sharing system to begin implementation in 2007 with a 2010 completion date.

For Vermont, the concurrent statewide activities in ME, NH, RI and MA can serve as models or learn from Vermont as they have similar challenges, whereas the activities in MA and NY can inform specific types of deployments as well as conduct HIE across state boundaries for patients and services as well as for disease surveillance and preparedness activities that are interstate.

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<sup>28</sup> eHealth Initiative, “Programs: eHealth Initiative’s Technical Assistance to States and Regions: New York,” accessed 18 Dec. 2006 <<http://www.ehealthinitiative.org/initiatives/programs/aboutstatesummit.msp>>.

## Appendix A: Vermont Health Information Technology Plan Principles

### *Overarching Principles*

- I. Vermonters will be confident that their health care information is secure and private and accessed appropriately.
- II. Health information technology (HIT) will improve the care Vermonters receive by making health information available where and when it is needed.
- III. Shared health care data that provides a direct value to the patient, provider or payer is a key component of an improved health care system. Data interoperability is vital to successful sharing of data.
- IV. Vermont's healthcare information technology infrastructure will be created using best practices and standards, and whenever possible and prudent, will leverage past investments, and will otherwise be fiscally responsible.
- V. Stakeholders in the development and implementation of the health care technology infrastructure plan will act in a collaborative, cooperative fashion to advance steady progress towards the vision for an improved healthcare system.

### *Detailed Principles*

- I. Vermonters will be confident that their health care information is secure and private and accessed appropriately.
  1. **Security and confidentiality:** Data must be safe from harm and accessible only to those with a "need to know" as defined by rules delineating data access from every category of authorized user (patient, provider, payer, others).
  2. **Patient Privacy:** Patient privacy shall be maintained through appropriate development and implementation of policies involving disclosure, consent, and sharing. The physical implementation of systems should allow for audit and reporting of data access and sharing.
  3. **Consumer Privacy:** Consumer privacy, security and confidentiality shall be considered paramount to the successful use and exchange of health information.
  4. **Secure Identity and Access Rights:** User identities should be immune from repudiation<sup>29</sup>, and access rights should be traceable and verifiable.
  5. **Data Stewardship:** Data stewards across all settings shall serve as custodians for data in their care, and should be responsible (along with all providers and users of data) for ensuring the proper documentation, collection, storage, and use of data within their purview.
  6. **Ethical Use:** Data used in health information exchange must be used ethically according to usual and customary standards of practice in the medical community.

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<sup>29</sup> To be immune from repudiation means that an authorized user cannot deny activities performed under his or her identity, such as access to electronic health information.



**II. Health information technology will improve the care Vermonters receive by making health information available where and when it is needed.**

7. **Ease of use:** Applications must be easy to use for both novice and expert users.
8. **Consistency:** Interfaces should be similar enough to present a consistent look and feel to the user, though different interfaces might be necessary for different types of users.
9. **Comprehensiveness:** The patient record should be as complete and comprehensive as possible.
10. **High data quality:** Applications must help ensure valid, consistent, understandable, and secure data while presenting minimal obstacles to smooth and efficient use.
11. **Timeliness:** Data must be available in as near real-time as possible from the point of creation.
12. **Ease of access:** Data must be easy to access for all groups of authorized users regardless of their level of technical expertise. Ease of use comes first and foremost for healthcare providers who access systems.
13. **Multiple uses:** HIT planning, investment, and implementation must give consideration to multiple uses of data with appropriate formats for each, including its primary uses for clinical decision support, research, planning, evaluation and public health surveillance and oversight.

**III. Shared health care data that provides a direct value to the patient, provider or payer is a key component of an improved health care system. Data interoperability is vital to successful sharing of data.**

14. **Role of HIE:** Health Information Exchange is an important component of HIT and will drive improvements in the overall healthcare system.
15. **Common base of data:** A common base of data must be created to facilitate sharing and minimize redundancy. This data may be physically *or* logically consolidated (there may or may not be a central database).
16. **Structural Redundancy:** Data that is captured in many systems and sources is unavoidable. This redundancy can provide advantages in terms of speed of access and recoverability.
17. **Documentation:** Detailed information about data must be created, maintained, and made available to assist in data quality assurance.
18. **Accuracy:** Data must be accurate and complete (there is often a tradeoff between these two). Clinical data must be reviewed routinely by an appropriate person to ensure accuracy.
19. **Population-based:** Records should be populated prospectively, starting with birth record information for newborns, *and* retrospectively using historical information, to construct as complete a health record as possible. Accurate patient matching is crucial to this capability. Accommodation needs to be made for patients who are born outside of the State to ensure that their records are included.

**IV. Vermont's healthcare information technology infrastructure will be created using best practices and standards, and whenever possible and prudent, will leverage past investments, and will otherwise be fiscally responsible.**

20. **Platform Neutrality:** There will be no predetermined platform architectures<sup>30</sup>.
21. **Reliability:** Systems must operate reliably and be resilient to natural or technical disasters.
22. **Business continuity and disaster recovery:** Vermont must be able to meet the healthcare needs of its population during times of crisis.
23. **Leverage Networks:** Wherever possible, existing networks should be leveraged to minimize cost and complexity.
24. **Use of the Internet:** Wherever possible, secure use of the Internet as a wide-area network should be supported and encouraged.
25. **Standards:** Where relevant, government (national, state, and local) and industry standards for healthcare information technology shall guide technical decisions in planning, investment, and implementation. Standards should be adopted to the extent possible for both HIE and some other areas of HIT (for example, in the area of data encoding).
26. **Adaptability:** Applications must be easily adaptable to changing functional and technical requirements.
27. **Cost effectiveness:** Information technology must contribute to the cost effectiveness of the processes it supports, and must be cost effective from the point of view of the system-as-a-whole. Determining cost effectiveness should consider both tangible and intangible benefits.

**V. Stakeholders in the development and implementation of the health care technology infrastructure plan will act in a collaborative, cooperative fashion which will advance steady progress towards the vision for an improved healthcare system.**

28. **Support of Mission:** HIT initiatives must support the specific mission and goals of the State. All those associated with health care have a responsibility to actively participate in progressing toward the state's vision of an improved health care system.
29. **Multi-Dimensional:** HIT deployment must balance the needs and perspectives of all stakeholders, including the healthcare provider dimension, personal health dimension, and population health dimension.
30. **Practical Now, Ideal Later:** HIT in Vermont needs an appropriate vision of the future, but compromises will need to be made now to ensure progress within the frame of practical implementation.
31. **Agree to Disagree:** Civility will reign in reaching consensus agreements when stakeholders disagree on complex issues.
32. **Plan as a Living, Evolving Document:** The plan will be a living, evolving document once it is released, to allow adaptation to changing circumstances and evolving standards. The technology plan will have as smooth transitions as are possible to new technologies to reduce severe impacts on infrastructure and investments.
33. **Measure Impact:** Accepted metrics will be used, where possible to judge the impact and performance of using health information technology to improve value to the community.

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<sup>30</sup> Predetermined platform architectures might include a particular computer operating system, programming language, database, or software from a particular vendor. Standards help to promote interoperability while allowing for platform independence across organizations.

34. **Governance:** State HIT planning and implementation shall have clear and strong processes for governance that is inclusive of the interests of all affected parties consistent with the highest standards of its participants.
35. **Stakeholder Education:** Education of all stakeholders (public, providers, health plans, others) will be critical to promoting the understanding of the potential of health information technology and health information exchange in improving health care delivery.
36. **Equitable Use:** Health information exchange must be used equitably by the participants to minimize any secondary effects due to such issues as competitive marketplace pressures or personal gain.
37. **Role of VITL:** VITL is a health information exchange for the state of Vermont, responsible for facilitating the exchange and use of healthcare information electronically across organizations in the State in a secure and efficient manner.
38. **Role of the State of Vermont:** The State of Vermont plays a critical role to support health information technology adoption across the state, particularly as it relates to Certificate of Need (CON) review, state agency participation, legislative compliance, and inter-state exchange.
39. **Do No Harm:** Chosen directions should result in minimal adverse impact on patients and existing business and clinical processes and activities.

## Appendix B: Glossary of Terms

**AHIC** American Health Information Community

AHIC is a federally-chartered advisory committee that provides input and recommendations to HHS on how to make health records digital and interoperable, and assure that the privacy and security of those records are protected.

**AHRQ** Agency for Healthcare Research and Quality

AHRQ is the nation's lead federal agency for research on health care quality, costs, outcomes, and patient safety.

**ANSI** American National Standards Institute

ANSI coordinates the development and use of voluntary consensus standards in the U.S. ANSI has a federal contract to run the HITSP standards harmonization project.

**ASP** Application Service Provider

ASPs offer software applications on a hosted basis, running on a remote server, and the service is usually paid for on a monthly subscription basis. It is an alternative to purchasing software.

**BISHCA** Vermont Department of Banking, Insurance, Securities and Health Care Administration

BISHCA has contracted with VTTL to develop the health information technology plan.

**Blueprint** Vermont Blueprint for Health

The Vermont Department of Health has launched the Blueprint for Health Initiative to improve the way chronic conditions are managed, such as diabetes. VTTL is providing comprehensive data services to the Blueprint for Health's Chronic Care Information System.

**Bridges to Excellence**

Bridges to Excellence is a non-profit multi-state, multi-employer coalition developed by employers, physicians, healthcare services researchers and other industry experts to reward quality across the health care system.

**CCHIT** Certification Commission for Health Information Technology

CCHIT is a voluntary, private-sector organization launched in 2004 to certify health information technology (HIT) products such as electronic health records and the networks over which they interoperate.

**CCIS** Chronic Care Information System

See **Blueprint**.

**CDC** Centers for Disease Control

Founded in 1946 to help control malaria, the CDC is the nation's best known public health agency. Its activities include preventing and controlling infectious and chronic diseases, injuries, workplace hazards, disabilities, and environmental health threats.

**CHAMP** Creating Healthy Adolescents-A Model Prevention Project

CHAMP has a primary goal to develop a new foster-home based health service model designed to reduce substance abuse among adolescents in State custody.

**CHF** Congestive Heart Failure

CHF is a condition in which the heart has been weakened and can't pump enough blood to the body's other organs.

**CON** Certificate of Need

The CON program administered by BISHCA ensures that licensed health care facilities and services are necessary, non-duplicative and distributed fairly throughout the state.

**CPT** Current Procedural Terminology

CPT is a set of codes used in the process of billing for health care services.

**DICOM** Digital Imaging and Communications in Medicine

DICOM is a standard for distributing and viewing any kind of medical image regardless of the origin.

**DII** Department of Information and Innovation

The Vermont Department of Information and Innovation works with state agencies to provide integrated communication and information technology services to the people of Vermont through a cost effective environment in which information is shared for the benefit of government and the public.

**DOQ-IT** Doctor's Office Quality-Information Technology

The DOQ-IT program is a national initiative that promotes the adoption of EHR systems to improve quality and safety for Medicare beneficiaries in small- and medium-sized physician offices.

**eHI** eHealth Initiative

The eHealth Initiative is an independent, non-profit organization whose mission is to drive improvement in the quality, safety, and efficiency of healthcare through information technology.

**EHR** Electronic Health Record

An EHR is a computer-based patient medical record that can be used to collect and look up patient data by physicians or health professionals. The term electronic health record is often used interchangeably with electronic medical record, but an EHR includes data supplied by patients.

**EKG** Electrocardiogram

An EKG is a print out produced by an electrocardiograph, which shows the electrical activity of the heart over time.

**EMR** Electronic Medical Record

An EMR is a medical record in digital format that includes data from laboratory tests, diagnostic procedures, physical exams, medication lists, etc.

**EPSDT** Early Periodic Screening, Diagnosis, and Treatment

EPSDT is the child health component of Medicaid. It's required in every state and is designed to improve the health of low-income children, by financing appropriate and necessary pediatric services.

**GCR** Global Clinical Record

GCR is an electronic record that organizes clinical data and supports specific operational functions for the Agency of Human Services.

**HHS** Health and Human Services

The Department of Health and Human Services is the U.S. government's principal agency for protecting the health of all Americans and providing essential human services.

**HIE** Health Information Exchange

HIE is the pooling and sharing of demographic and clinical data between health care providers. Related to **HIT**; whereas HIE is the process of sharing demographic and clinical data, HIT is the technology that can enable the process.

**HIEN** Health Information Exchange Network

An HIEN connects various health information exchanges and regional health organizations together.

**HIMSS** Healthcare Information and Management Systems Society

HIMSS is a membership organization for healthcare IT professionals.

**HISPC** Healthcare Information Security and Privacy Collaboration

Thirty-four states and U.S. territories have signed agreements to join the HISPC project to assess how organizational business policies, practices, and state laws regarding privacy and security affect health information exchange on a national level.

**HIT** Health Information Technology

HIT is used for the organization, analysis and generation of health data to treat patients and for insurance and other reimbursement, or for planning, quality assessment, research, and legal purposes.

**HRSA** Health Resources and Services Administration

HRSA is an agency of the U.S. Department of Health and Human Services. It is the primary federal agency for improving access to health care services for people who are uninsured, isolated or medically vulnerable.

**IOM** Institute of Medicine

The IOM is a non-profit organization that provides unbiased, evidence-based, and authoritative information and advice concerning health and science policy to policy-makers, professionals, leaders in every sector of society, and the public at large.

**HITSP** Health Information Technology Standards Panel

This organization of 18 independent entities serves as a cooperative partnership between the

public and private sectors for the purpose of achieving a widely accepted and useful set of standards to facilitate the exchange of health information.

**HL7** Health Level 7

HL7 is a standards developing organization that has created a standard for interfacing different health information systems and exchanging data.

**HLN** HLN Consulting, LLC

HLN provides a wide range of technology consulting services to public health agencies and their not-for-profit partners and is contracted by VTTL to facilitate the development of the VHITP.

**MHINT** Maine Health Information Network Technology

An organization created to oversee the development of the statewide electronic clinical information sharing network in Maine. The name was recently changed to HealthInfoNet.

**MITA** Medicaid Information Technology Architecture

MITA is a national framework to support improved systems development and health care management for the Medicaid program.

**MPI** Master Patient Index

A software application that identifies and links pieces of data for each patient.

**NECLA** NorthEast Community Laboratory Alliance

An affiliation of community-based hospital laboratories.

**NHIN** National Health Information Network

An Internet-based data exchange that will allow medical providers to share health data to improve care.

**ONC** Office of the National Coordinator

ONC is a government agency (part of HHS) that oversees and encourages the development of a national, interoperable (compatible) health information technology system to improve the quality and efficiency of health care.

**OVHA** Office of Vermont Health Access

OVHA is the state office responsible for the management of Medicaid, the State Children's Health Insurance Program, and other publicly-funded health insurance programs in Vermont.

**PHIN** Public Health Information Network

PHIN is a national initiative of the CDC to implement a multi-organizational business and technical architecture for public health information systems.

**PHR** Personal Health Record

The Personal Health Record is an electronic, ubiquitous, lifelong resource of health information needed by individuals to make health decisions. Individuals own and manage the information in the PHR, which comes from health care providers and the individual.

The PHR is maintained in a secure and private environment, with the individual determining rights of access. The PHR is separate from and does not replace the legal record of any provider.<sup>31</sup>

**QIO** Quality Improvement Organization

Under contracts with the federal government (through the Quality Improvement Organization Program, part of the Centers for Medicare & Medicaid Services), QIOs monitor the appropriateness, effectiveness, and quality of care provided to Medicare beneficiaries. QIOs work with hospitals and physician practices on quality improvement projects.

**RFP** Request for Proposals.

Organizations that are seeking to purchase something or hire a contractor may issue a request for proposals.

**RHIO** Regional Health Information Organization

An organization that has been created to facilitate the exchange of health care information in a certain geographic area.

**RLS** Record Locator Service.

The RLS provides authorized users of a regional health information network with pointers to the location of patient health information across the network. This would enable users to access and integrate patient healthcare information from the distributed sources without national patient identifiers or centralized databases.

**RTI** Research Triangle Institute International

RTI is coordinating a national effort with 34 states and U.S. territories to identify best practices and develop solutions for sharing electronic health records that will lead to the formation of a National Health Information Network.

**VDH** Vermont Department of Health

A state agency that oversees numerous public health programs.

**VHITP** Vermont Health Information Technology Plan

The plan for establishing a statewide, integrated electronic health information infrastructure in Vermont.

**VITL** Vermont Information Technology Leaders

VITL is a multi-stakeholder non-profit corporation formed by a broad base of providers, payers, employers, patients, state agencies, and information technology vendors. VITL's vision is that the Vermont health information exchange will share real-time clinical information among health care providers across the state to improve patient outcomes while reducing service duplication and decreasing the rate at which healthcare spending occurs.

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<sup>31</sup> Definition provided by The American Health Information Management Association e-HIM Personal Health Record Work Group, "The Role of the Personal Health Record in the EHR," *Journal of AHIMA* 76:7 (Jul.-Aug. 2005): 64A-D.



## Appendix C: Vermont Health Information Technology Plan Workgroup Members

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